We claim:

1. An apparatus for removing a conductive material from a surface of a wafer, using a solution, comprising:

at least one electrical contact configured to be placed in proximity of the surface and adapted to electrically connect the at least one electrical contact with the surface without physically touching the surface, wherein the electrical contact and the surface are electrically connected through the solution; and

an electrode configured to be in the presence of the solution wherein upon application of a potential difference between the at least one electrical contact and the electrode the conductive material is removed from the surface.

2. The apparatus of claim 1 further comprising a pad having a top surface positioned between the surface and the electrode.

3. The apparatus of claim 2, wherein the at least one contact is in the pad.

4. The apparatus of claim 2, wherein the top surface is adapted to polish the surface.

5. The apparatus of claim 3, wherein the top surface is adapted to polish the surface.

6. The apparatus of claim 2 further comprising a mechanism configured to establish relative motion between the surface and the pad.

7. The apparatus of claim 6, wherein the top surface is adapted to touch the surface for polishing.

8. The apparatus of claim 3, wherein the at least one contact includes a conductive element.

9. The apparatus of claim 8, wherein the pad rests on the conductive element and the pad includes at least one opening to receive the at least one contact.

10. The apparatus of claim 9, wherein the conductive element includes a bias mechanism to urge the pad against the surface of the wafer.

11. The apparatus of claim 10 further comprising a wafer holder to retain the wafer and place the surface against the top surface of the pad.

12. The apparatus of claim 1, wherein the at least one contact includes a plurality of contacts.

13. The apparatus of claim 12, wherein the plurality of contacts is distributed in a pattern.

14. The apparatus of claim 2, wherein the at least one contact includes a plurality of contacts.

15. The apparatus of claim 14, wherein the plurality of contacts is in the pad.

16. The apparatus of claim 14, wherein the top surface is adapted to polish the surface of the wafer.

17. The apparatus of claim 14 further comprising a mechanism to establish relative motion between the surface and the pad.

18. The apparatus of claim 17, wherein the top surface is adapted to touch the surface.

19. The apparatus of claim 14, wherein the plurality of contacts includes a conductive element connecting the plurality of contacts.

20. The apparatus of claim 19, wherein the pad rests on the conductive element and the pad includes a plurality of openings to receive the plurality of contacts.

21. The apparatus of claim 20, wherein the plurality of contacts is distributed in a pattern.

22. The apparatus of claim 21, wherein the conductive element is biased towards the surface of the wafer to push the pad against the surface as the top surface of the pad touches the surface.

23. The apparatus of claim 22 further comprising a wafer holder to retain the wafer and adjust a distance between the top surface of the pad and the surface of the wafer.

24. The apparatus of claim 2, wherein the top surface of the pad includes abrasives.

25. The apparatus of claim 2, wherein the pad has channels configured to pass the solution.

26. The apparatus of claim 2, wherein the pad is porous.

27. The apparatus of claim 1 further comprising a mechanism configured to establish relative motion between the at least one contact and the surface of the wafer.

28. The apparatus of claim 27, wherein the at least one contact is stationary and the wafer is adapted to move.

29. The apparatus of claim 27, wherein the at least one contact is adapted to move and the wafer is stationary.

30. The apparatus of claim 27, wherein both the at least one contact and the wafer are adapted to move.

31. The apparatus of claim 2 further comprising a carrier head to hold the wafer.

32. The apparatus of claim 31, wherein the electrode holds the pad.

33. The apparatus of claim 32, wherein the carrier head and the pad are adapted for relative motion therebetween.

34. The apparatus of claim 33, wherein the carrier head is adapted to be stationary and the pad is adapted to move.

35. The apparatus of claim 33, wherein the carrier head is adapted to move and the pad is adapted to be stationary.

36. The apparatus of claim 33, wherein both the carrier head and the pad are adapted to move.

37. The apparatus of claim 1, wherein the conductive material is copper.

38. The apparatus of claim 2, wherein the at least one electrical contact includes a conductive element.

39. The apparatus of claim 38, wherein the pad rests on the conductive element.

40. The apparatus of claim 2 further comprising means to deliver solution onto the pad.

41. The apparatus of claim 2 further comprising means to deliver solution through channels in the pad.

42. An apparatus to electropolish a conductive material off a front surface of a wafer, using a solution and a power source, comprising:

a plurality of electrical contacts positioned in proximity of the front surface without touching the surface; and

an electrode configured to be connected to the power source so that when a potential is applied between the plurality of electrical contacts and the electrode, an electrical current passes through the solution to electropolish the conductive material off the front surface.

43. The apparatus of claim 42 further comprising a pad having a top surface positioned between the surface and the electrode wherein the solution flows between the top surface of the pad and the surface of the wafer.

44. The apparatus of claim 43, wherein the plurality of contacts is in the pad.

45. The apparatus of claim 43, wherein the top surface is adapted to polish the surface of the wafer.

46. The apparatus of claim 43 further comprising a mechanism configured to establish relative motion between the surface and the pad.

47. The apparatus of claim 46, wherein the top surface of the pad touches the front surface of the wafer to assist in removing the conductive material.

48. The apparatus of claim 43, wherein the plurality of contacts includes a conductive element connecting the plurality of contacts.

49. The apparatus of claim 48, wherein the pad includes a plurality of openings configured to receive the plurality of contacts.

50. The apparatus of claim 49, wherein the plurality of contacts is distributed in a pattern.

51. The apparatus of claim 50, wherein the conductive element includes a bias mechanism to urge the pad against the surface of the wafer.

52. The apparatus of claim 51 further comprising a wafer holder to retain the wafer and adjust a distance between the top surface of the pad and the surface of the wafer.

53. The apparatus of claim 49, wherein the pad includes channels for solution flow.

54. The apparatus of claim 49, wherein the pad is porous.

55. The apparatus of claim 43, wherein the top surface of the pad includes abrasives.

56. The apparatus of claim 43, wherein the pad includes channels for solution flow.

57. The apparatus of claim 43, wherein the pad is porous.

58. A liquid contact electropolishing apparatus to polish a conductive surface using a solution and a power source wherein the conductive surface is configured to contact the solution, comprising:

a first conductive element configured to contact the solution and be connected to the power source;

a pad having a top surface configured to be disposed over the first conductive element and having at least one open area to provide solution access to the conductive surface; and

a second conductive element configured to contact the solution, be disposed proximate but not touching the conductive surface, and be connected to the power source wherein a potential difference applied between the first conductive element and the second conductive element removes the conductive surface.

59. The liquid contact electropolishing apparatus of claim 58, wherein the at least one open area of the pad defines a conductive material removal area.

60. The liquid contact electropolishing apparatus of claim 59 further comprising a mechanism to establish relative motion between the conductive material removal area and the conductive surface wherein the relative motion provides conductive material removal throughout the conductive surface.

61. The liquid contact electropolishing apparatus of claim 59, wherein the at least one contact is below the top surface of the pad.

62. A liquid contact electropolishing apparatus to polish a conductive surface using a solution, comprising:

a cathode having a plurality of cathode openings and configured to contact the solution; and

a pad having a top surface disposed over the cathode, the pad having a plurality of pad openings which corresponds to the plurality of cathode openings; and

an anode having a plurality of raised tips configured in the plurality of openings and immersed in the solution wherein an electrical connection between the anode, cathode, and the conductive surface occurs through the solution to remove the conductive surface.

63. The liquid contact electropolishing apparatus of claim 62 further comprising a pad having a top surface configured to contact the conductive surface.

64. The liquid contact electropolishing apparatus of claim 63, wherein the top surface is adapted to polish the conductive surface.

65. The liquid contact electropolishing apparatus of claim 64 further comprising a mechanism to establish relative motion between the conductive surface and the top surface of the pad to planarize the conductive surface.

66. The liquid contact electropolishing apparatus of claim 62, wherein:

the raised tips of the anode are electrically isolated from cathode; and

the pad openings are larger than the cathode openings.

67. The liquid contact electropolishing apparatus of claim 66, wherein the plurality of openings of the pad defines a plurality of material removal areas and the relative motion provides conductive material removal throughout the conductive surface.